<table>
<tr><th colspan="3">FY2018 Michigan PWSS Program Source Water Protection Work Plan Summary
October 1, 2017 to September 30, 2018
Federal funding used: PWSS grant, DWSRF set-aside funds</th></tr>
<tr><td>State Contacts</td><td>Matt Gamble,
gamblej1@michigan.gov;
517-897-1508</td><td>Amy Lachance,
Lachancea1@michigan.gov;
616-490-9590</td></tr>
<tr><td>EPA Region 5 Contact</td><td colspan="2">Cary McElhinney
mcelhinney.cary@epa.gov
(312) 886-4313</td></tr>
<tr><td>Expectations</td><td colspan="2">NOTE: Source Water Protection is voluntary in Michigan.
<u>Source Water Protection</u>
• Report the number of CWSs with source water protection (SWP) plans and the number of CWSs implementing SWP measures (electronically via SDWIS, if possible) as of June 30 by August 15. Consider ways to document and track SWP implementation efforts in state data system.
• SDW-SP4a: Percent of community water systems (CWS) where risk to public health is minimized through source water protection. In FY 2017, Michigan's target was 35% of CWSs (i.e., "minimized risk" achieved by substantial implementation, as determined by the state, of actions in a source water protection strategy). Michigan achieved 27% in FY 2017.
• SDW-SP4b: Percent of population served by community water systems where risk to public health is minimized through source water protection. In FY 2017, Michigan's target was 81% of CWS population with source water protection. Michigan achieved 71% in FY 2017.
• Annually report on SWP activities conducted with Drinking Water State Revolving Fund (DWSRF) set-aside funding.
• Attend the annual State SWP meetings.
• Update source water assessments, including effects of climate change, as resources allow.
• Develop and expand SWP program implementation mechanisms, such as climate change adaptation planning, where possible.
• Assist local community source water protection plan preparation and implementation, including climate change adaptation activities, in cooperation with Source Water Collaborative (SWC) members (e.g., National Rural Water Association, American Planning Association, and others.)
• Develop and implement coordinated approaches with other regulatory and voluntary programs to protect both the quality and quantity of source water, particularly in areas of concern.
• Develop and expand SWP program implementation mechanisms, such as climate change adaptation planning, where possible.

<u>Harmful Algal Blooms (HABs)</u>
• Please specify here efforts the state will take in FY 2018 to reduce nutrient and HAB impacts to source water protection areas,</td></tr>
</table>

	implement EPA's cyanotoxin health advisories, and assist systems with treatment evaluations, etc. • MDEQ initiated surface water system voluntary monitoring in 2017. MDEQ will continue to determine system vulnerability to HABs with voluntary raw source monitoring for the inland, Lake St. Clair, and Great Lakes connecting channel systems. MDEQ drinking water and clean water staff will continue to share and evaluate monitoring data to determine vulnerability and designated use attainment. • MDEQ will also work with Blue Source Water Accounting initiative to help reduce nutrient and HAB impacts on drinking water sources. MDEQ staff will evaluate HAB treatment capacities for those determined to be potentially vulnerable. • MDEQ staff will participate on the Region 5 HABs workgroup and quarterly calls.
State Commitments	• Michigan's definition of "Substantial Implementation" is: "Criteria for substantially implementing state source water protection activities for groundwater systems include: --Municipal systems having an approved program less than six years old, non-municipal systems completing a source water protection guide based on their provisional delineation, or a low vulnerable system (tritium<1) completing an approved program based on a wellhead protection area which is a modeled ellipse around the well field. --Substantial implementation criteria for surface water systems include 1) an approved surface water intake protection program, or 2) a critical assessment zone that does not intersect land and operates real time monitoring equipment and participates in the early warning network from Marysville intake to the Monroe intake." --Small systems are now allowed a substantial implementation classification. • NCWS source water protection activities will be improved with the development of the Michigan Groundwater Management Tool (MGMT) and additional activities to meet substantial implementation activities. • CWS program has been working towards updating all Source Water Assessments; approximately 24 assessments were updated in FY 2017. In FY 2017, NCWS program completed updating approximately 213 assessments. In FY 2018 NCWSs will continue updating SWAs and reimbursing LHDs for each SWA reviewed with a NTNCWS owner. • Additional effort will be provided in FY 2018 to encourage surface water systems to develop and implement or to update their surface water intake protection program plans. • Michigan Rural Water Association continues to partner with MDEQ to update existing SWP plans. Other ongoing programs include 50/50 matching WHP grants and local ordinance development.

	• In the next 5 years, MDEQ would like to use GIS systems to automate the update of source water assessments. • SWP plan development and implementation will be achieved with assistance from the following SWC partners: Michigan Rural Water Association, USDA-Farm Service Agency, Tri-County Regional Planning Commission. • MDEQ promotes indirect methods of addressing climate change by encouraging SWP and encouraging resiliency planning, which could include climate change adaptation if necessary. • MDEQ will continue to develop and implement coordinated approaches with Clean Water Act programs. All NPDES permits in Michigan are protective of drinking water uses. Groundwater discharge permits within a source water protection area require the public water supply be notified. The PWS program works with the Aquatic Nuisance Control program to ensure the protection of drinking water sources prior to herbicide application or treatment of a water body. MDEQ will also use the CWS/SDWA Integration Guide to further develop and implement other source water protection activities. Nutrient reduction and algae growth activities are primarily conducted by MDEQ's Water Resources Division. Monitoring assistance and resources are provided by Water Resources Division funding and data is shared to evaluate impact of HABs on public water systems. • MDEQ will be involved in peer review meetings to consider Part 201/213 closures in WHPAs. A draft policy has been developed to ensure communication between programs. • MDEQ is phasing in CWS groundwater source water assessments that consider contaminant sources in a delineated area using the Michigan Groundwater Mapping Tool (MGMT) rather than a radial isolation area. In FY 2018, NCWS will continue updating SWAs that utilize MGMT delineated areas.
Region 5 Assistance	• Encourage data sharing with other programs to prioritize permitting and compliance activities in source water areas, for example. • Review state 303(d) and 305(b) reports (or integrated reports) to recommend opportunities for source water protection; continue to work with the Clean Water Act program (e.g., using the draft CWA/SDWA integration checklist and/or the online CWA/SDWA toolkit) to encourage the assessment of waters for drinking water use, as well as other collaborative initiatives. • R5 continues to solicit proposals from states for SWP workshops. • EPA continues to occasionally provide SWP brochures and webinars. • Facilitate the development and expansion of State-SWC partnerships. EPA will provide feedback and guidance. • EPA will encourage interstate communication through conference calls and an annual State/R5 EPA meeting. • Encourage data sharing with other programs to prioritize permitting and compliance activities in source water areas, for example.

	• EPA will continue to develop tools as needed, foster cross-program coordination, and encourage coordination with SWC partners to encourage broad-based actions at the State and local levels to address potential sources of contamination. Provide States with examples of existing state-wide collaboratives and contact as requested. • Maintain and update State information in the Region 5 portion of the SWP report, as requested by EPA HQ. • Provide training, technical assistance, and technology transfer capabilities. • Facilitate the adoption and sharing of GIS data bases to support local decision making. • Work with Clean Water Act programs to encourage assessment of surface water use, prioritize impaired waters, protect intakes downstream of NPDES-permitted sources, develop TMDLs, and develop tailored approaches to achieve substantial implementation. Review State 303(d) and 305(b) reports (or integrated reports) to recommend opportunities for source water protection. R5 appreciated MDEQ leading the discussion on "phosphates in drinking water and wastewater treatment plant phosphorus discharge standards" during the joint CWA/SDWA State Directors' meeting on April 26, 2017. • Work with the state to characterize current and future pressures on source water quality and availability. Support voluntary • Promote the innovative use of DWSRF set-asides and other potential program funding streams.
Self-Assessment and Evaluation	*States indicate here partners actively assisting with SWP plan development and implementation:* *Please specify here efforts the state will take in FY 2019 to reduce nutrient and HAB impacts to source water protection areas, implement EPA's cyanotoxin health advisories, and assist systems with treatment evaluations, etc.* R5 appreciates MDEQ's participation in the R5 HAB workgroup and quarterly calls and commends the state for sharing monitoring data between CWA and SDWA programs, as well as its other HAB activities to protect public health. See excerpt below from FY 2015/FY 2016 End-of-Year Evaluation Report regarding Source Water Protection.
References	SPMs—Include as relevant attachments/references: ▪ State's annual DWSRF set-aside report for FY 2017 (contains SWP activities  Michigan Set Aside Activity Report FY17

	▪ State report, "Current State of Harmful Algal Bloom Impacts on Michigan Drinking Water Supplies", September 2014 https://www.michigan.gov/documents/deq/deq-odwma-water-cdw-HAB_Impacts_467739_7.pdf • State Wellhead Protection website https://www.michigan.gov/deq/0,4561,7-135-3313_3675_3695---,00.html ▪ Other state reports (e.g., newsletters, updates from annual state SWP managers meeting, national SWP report) ▪ State web page(s) ▪ State reports to state legislature (e.g., WI and IL) ▪ State substantial implementation definitions and the latest list of substantially implementing systems, if the state does not report this information to SDWIS/State

Excerpt from FY 2015/FY 2016 End-of-Year Evaluation Report regarding Source Water Protection:

Ground Water and Source Water Protection:

MDEQ annually reports to EPA the number of CWSs with Source Water Protection (SWP) plans and the population served by CWSs with minimized risk due to SWP. Even though source water protection is voluntary in Michigan, MDEQ exceeded its 30% target (34.9%) in FY 2015 to ensure CWSs have SWP plans. MDEQ met its target of 80% (80.7%) of the population served by CWSs with minimized risk due to SWP. In FY 2016, MDEQ exceeded its 32% target (35.8%) to ensure CWSs have SWP plans. MDEQ met its target of 80% (79.7%) of the population served by CWSs with minimized risk due to SWP. MDEQ recommends that SWP plans be updated every 6 years, especially in prioritized areas, to be considered as substantially implementing SWP. MDEQ expects these target levels to potentially drop the next fiscal year if CWSs do not update their SWP program plans.

MDEQ has continued to contract with Michigan State University (MSU) to continually improve the Michigan Ground Water Management Tool (MGMT), an innovative tool that uses information from the Wellogic water well record system to perform particle tracking and delineate Wellhead Protection Areas (WHPAs). MDEQ has used MGMT to delineate 2,745 WHPAs for CWSs that had previously not completed WHPA delineations. This effort has resulted in WHPAs for:

- 3,458 wells serving a total of 1,264 CWSs, where 1,280 total WHPAs consist of 379 WHPAs that have been identified by traditional means, and 901 WHPAs that have been identified using MGMT; and,
- 1,960 NTNCWSs wells corresponding to approximately 1,465 WHPA delineations.

MSU has successfully created a spatially accurate groundwater database from Wellogic data, to refine the delineation process using MGMT, and to better determine the drift thickness of the aquifer. MDEQ is also focusing on outreach to CWSs and NTNCWSs to train them on MGMT and

its capabilities related to delineations of WHPAs. Two workshops were conducted in the Lower Peninsula, Midland and Novi, and the final workshop was held in the Upper Peninsula in December 2015.

MDEQ has a WHP Program which offers a 50/50 grant to CWSs to develop a WHP plan and conduct WHP activities. This program has been very successful, though funding for this program has decreased over the past 13 years. In FY 2015, $523,000 was awarded to 46 CWSs to conduct wellhead protection activities, which is the largest number of 50/50 WHP grants issued to CWSs since 2006. In FY 2016, $461,100 was awarded to 45 CWSs to conduct wellhead protection activities.

Using the WHP 50/50 Grant Program as a template, MDEQ developed a Surface Water Intake Protection (SWIP) Program that incentivizes participation in the development of a SWIP plan with 50/50 grants (through the DWSRF's Local Assistance Capacity Development set-aside). Implementation of the SWIP grant program began in FY 2014. In FY 2015, $50,000 was awarded to the City of Detroit to develop SWIP plans for their intakes at Lake Huron, Belle Isle and Fighting Island. All work was completed. In FY 2016, MDEQ awarded a SWIP grant to Muskegon for $15,000, and continued to offer grants to CWSs for surface water protection. An additional $50,000 was offered to LHDs to revise the many outdated source water assessments at NTNCWSs. In FY 2016, 17 LHDs participated in the completion of 124 NTNCWS source water assessments, utilizing about $10,750.

In the next few years, MDEQ will focus more on Harmful Algal Blooms (HAB) and assessing HABs effects on surface water systems, by evaluating surface water system vulnerability to HABs.

Challenges to implementing SWP in Michigan include the loss of State source water staff due to budget cuts and retirements.